Problem Set 4
The Effects of Government Borrowing
Closed Economy, No Foreign Sector, Savings Responds to the Interest Rate

Overview: In this problem set, you will investigate how changes in government spending, financed by changing the government’s surplus or deficit, affect an economy. In particular, you will investigate three scenarios differing only by the amount of government spending (and borrowing) in an economy. You will determine the equilibrium conditions, at full employment, for this economy.

References: This material is covered in chapters 9 (especially pp 231 – 239) and 12 (especially pp 299 – 301) of your text and in your notes.

Assumptions: It is assumed that the economy is at full employment. There is no foreign sector in this model. It is an economy that is closed to foreign trade and capital flows. Savings responds to the interest rate. Finally, government borrowing is assumed to have nothing to do with the interest rates. i.e., Your $Q_{Gov}$ and $QD_{Gov}$ columns should be the same number all the way down for a given situation.

Example: On page two you are given a completed example showing the equilibrium conditions an economy. U.S. supply and demand for loanable funds is composed of private U.S. demand for loanable funds (i.e. Investment), the private U.S. supply of loanable funds (i.e. savings by households), and government borrowing (a demand for loanable funds) or government savings (i.e. the government is a supplier of loanable funds if it runs a surplus). Putting it all together, we find that the loanable funds market will be in equilibrium at a real interest rate of 7.5%. At that interest rate, U.S. private quantity supplied, i.e. Savings, is $1,300. Investment, i.e. the private demand for loanable funds, is $800.

Your Turn: Now comes the fun part. On pages 3 – 5, you are given 3 different situations. The situations only differ by the amount of government spending. In situation 1, the government is running a balanced budget. In situation 2, it is running a deficit. In situation 3, it is running a surplus. Fill in the numbers, similar to the example, and answer the questions on page 6. Turn in page 6.
You are given the U.S. private loanable funds market and the following information:

- Govt Spending (excl. transfers) = $1,750
- Taxes (net of transfers) = $1,250
- Real GDP = $4,500

You should get the following results: 1) the U.S. Govt. table, 2) the (total) loanable funds market) and 3) the items below:

- Govt. Deficit or Surplus = $500
- \( r_E = 7.5\% \)
- \( I = $800 \)
- \( S = $1,300 \)
- \( C = $1,950 \)
Situation 1

You are given the U.S. private loanable funds market and the following information:

Govt Spending (excl. transfers) = $1,750
Taxes (net of transfers) = $1,750
Real GDP = $5,500

You should get the following results: 1) the U.S. Govt. table, 2) the (total) loanable funds market and 3) the items below:

Govt. Deficit or Surplus =
\[ r_E = I = \]
\[ S = C = \]
Situation 2

You are given the U.S. private loanable funds market and the following information:

- Govt Spending (excl. transfers) = $2,000
- Taxes (net of transfers) = $1,750
- Real GDP = $5,500

You should get the following results: 1) the U.S.Govt. table, 2) the (total) loanable funds market) and 3) the items below:

Govt. Deficit or Surplus = 

\[ r_E = I = \]
\[ S = C = \]
Situation 3

You are given the U.S. private loanable funds market and the following information:

- Govt Spending (excl. transfers) = $1,500
- Taxes (net of transfers) = $1,750
- Real GDP = $5,500

You should get the following results: 1) the U.S. Govt. table, 2) the (total) loanable funds market and 3) the items below:

Govt. Deficit or Surplus =

\[ r_E = I = \]

\[ S = C = \]
Here’s My Problem Set # 4

Name: ____________________

Part 1: Situation 1
1. _____ What condition is the government budget in?:
   a. deficit
   b. balanced
   c. surplus

2. What is the equilibrium real interest rate?
   ______

3. What is the $ value of U.S. Investment?
   $ ________

4. What is Investment, a leakage or an injection? __________

5. What is Savings, a leakage or injection? __________

6. What is Taxes, a leakage or injection? ________

7. What is Govt spending, a leakage or injection? ________

8. _____ How do leakages and injection compare?
   a. leakages > injections
   b. leakages = injections
   c. leakages < injections

Part 2: Situation 2
9. _____ What condition is the government budget in?:
   a. deficit
   b. balanced
   c. surplus

10. What is the equilibrium real interest rate?
    ______

11. What is the $ value of U.S. Investment?
    $ ________

12. What is Investment, a leakage or an injection? __________

13. What is Savings, a leakage or injection? ________

14. What is Taxes, a leakage or injection? ________

15. What is Govt spending, a leakage or injection? ________

16. _____ How do leakages and injection compare?
   a. leakages > injections
   b. leakages = injections
   c. leakages < injections

Part 3: Situation 3
17. _____ What condition is the government budget in?:
   a. deficit
   b. balanced
   c. surplus

18. What is the equilibrium real interest rate?
    ______

19. What is the $ value of U.S. Investment?
    $ ________

20. What is Investment, a leakage or an injection? __________

21. What is Savings, a leakage or injection? ________

22. What is Taxes, a leakage or injection? ________

23. What is Govt spending, a leakage or injection? ________

24. _____ How do leakages and injection compare?
   a. leakages > injections
   b. leakages = injections
   c. leakages < injections

Part 4: General Questions
25. _____ In this problem set, we assumed that the economy is at QF. i.e. We assumed that changes in government spending do not change the size of production. What time period are we assuming?
   a. the short-run
   b. the long-run
   c. the doo run-run-run

26. When there was an increase in government spending, financed by a deficit, what if anything was crowded out?
    __________________ 
    __________________ 

27. _____ In general, how do leakages and injection compare?
   a. leakages > injections
   b. leakages = injections
   c. leakages < injections

28. Neatness Counts!